

The mental health of intensive care unit healthcare workers who care for critical patients in pandemics

The mental health of icu health care workers

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Abstract

Aim: In addition to examining the pathophysiology and treatment of the coronavirus 2019 disease (COVID-19), it is very important to investigate the psychological effects of the pandemic on healthcare workers.

Material and Methods: Our study was conducted in a group of nurses (85 people) who worked for at least 2 weeks in the COVID-19 intensive care unit of the Kastamonu Education and Research Hospital. Participants answered the questionnaire applied via the internet and sent the answers in the same way. For each participant, Patient Health Questionnaire-9 (phq-9, range 0-27), Generalized Anxiety Disorder-7 (gad-7, range 0-21), Insomnia Severity Index (isi, range 0-28) criteria are respectively depression, anxiety, and it was used to assess the severity of insomnia symptoms.

Results: It was observed that 24.7% of the nurses participating in our study had depression symptoms, 38.8% had anxiety symptoms, and 45.4% had insomnia symptoms. In the female nurse group, we found that depression, anxiety and insomnia symptoms were more pronounced. There was no statistically significant difference in 3 scales according to the years of intensive care work.

Discussion: Nurses treating COVID-19 patients are probably exposed to the highest risk of infection due to their close, frequent contact with patients and working longer hours than normal. The spread of the virus, the health of the family and others, changes in work, and concerns about isolation can affect the mental state of healthcare workers during this pandemic process.

In this study conducted on nurses working in the COVID intensive care unit, high rates of depression, anxiety and insomnia symptoms were observed among the respondents.

Keywords

COVID-19; Intensive care unit; Anxiety; Depression; Insomnia

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Introduction

At the end of December 2019, a new pneumonia caused by the Sars-Cov-2 (COVID-19) virus was reported from Wuhan, China, which rapidly spread to the whole world [1].

The first case was detected on March 11, 2020 in Turkey. The number of cases confirmed on September 30, 2020 was reported as 318 663 (available at: <https://covid19.saglik.gov.tr/TR-66122/genel-koronavirus-tablosu.html>). On January 30, 2020, the World Health Organization held an emergency meeting and announced that the global COVID-19 outbreak was an emergency of international public health. In addition to examining the pathophysiology and treatment of the COVID-19, it is very important to investigate the psychological effects of the pandemic on healthcare workers.

In this war that humanity has fought, healthcare professionals dealing with the diagnosis, treatment and care of patients with COVID-19 also experience psychological distress and other mental problems.

The psychological problems of healthcare workers related to the current pandemic stem from many factors such as uncertainty over the duration of the crisis, increasing number of cases, overwhelming workload, inadequate personal protective equipment, lack of specific drugs and vaccines, and insufficient psychological support.

Healthcare professionals are also affected by balanced social distance against the possibility of infecting themselves or their families with COVID-19. Experiences gained from early reports on the 2003 Severe Acute Respiratory Syndrome outbreak and COVID-19 show that healthcare workers experience anxiety, stress and fear [2,3].

Psychological assistance services, including telephone, internet, and practice-based counseling or intervention, are widely implemented by local and national mental health agencies in response to the COVID-19 outbreak.

In our study, to measure the symptoms of depression, anxiety and insomnia in intensive care nurses who provide care to COVID-19 patients, and to evaluate the mental health of intensive care nurses.

Material and Methods

Study Design

An online questionnaire was applied to a group of nurses (85 people) who worked in COVID intensive care unit for at least 2 weeks in the Kastamonu Education and Research Hospital. The questionnaire applied to the hospital staff was sent via Whatsapp. A brief explanation was made explaining the subject of the research before the questionnaire. Those who volunteered to participate after the explanation filled the forms and sent them to the researchers. Using Turkish versions of validated measurement tools, the symptoms of depression, anxiety, insomnia, and distress were focused on for all participants [4,5]. Accordingly, patient health questionnaire-9 (phq-9, range 0-27) [4], generalized anxiety disorder-7 (gad-7, range 0-21) [6], insomnia severity index (isi, range 0-28) [7] were used to evaluate the severity of symptoms of depression, anxiety, and insomnia, respectively. The total scores of these measurement tools are interpreted as follows:

- PHQ-9, normal (0-4), mild (5-9), moderate (10-14) and severe (15-27) depression;
- GAD-7, normal (0-4), mild (5-9), moderate (10-14) and severe (15-21) anxiety
- ISI, normal (0-7), threshold (8-14), moderate (15-21) and severe (22-28) insomnia.

These categories are based on the values determined in the literature [4,5].

The cut-off score to detect symptoms of major depression, anxiety, insomnia, and distress was 15, 7 [8], and 15 [2], respectively. Participants scoring higher than the cut-off threshold were considered to have severe symptoms.

Demographic data of the participants of our survey participants, gender (male or female), age (18-25, 26-35, 36-45 or > 46 years), marital status (married or single), presence of children (yes-no), social lifestyle (living alone or together), educational status (high school / associate degree-language / master), years of working in the intensive care (less than 1 year, 1-3 years, 4-5 years, 6 years or more).

Ethical Considerations

Ethics committee permission was obtained from Kastamonu University.

Statistical Data Analysis

Data analysis was performed using SPSS statistical software version 20.0 (ibm corp). The level of significance was set at $\alpha = .05$. The original scores of the 3 measurement tools were not normally distributed and are therefore presented as medians with intercard intervals (iqr). Ordered data derived from the count of each level for symptoms of depression, anxiety, and insomnia are presented as numbers and percentages. The nonparametric Mann-Whitney-U was used, and the Kruskal-Wallis test was used to compare the severity of both symptoms between 2 or more groups.

Results

The demographic characteristics of the 85 nurses participating in the study are summarized in Table-1. Sixty-eight of the nurses participating in the study (80%) were female, more than 50% [18-25 years old: 32 (37.6%) people, 26-35 years: 32 (37.6%) people] were young population. More than 50% of the participants had less than one year of intensive care experience [46 (54.1%) people]. Forty-one (47.1%) participants were married, 27 (32.9%) had at least one child; 49.7% of the participants were maintaining their social life alone in this process. Thirty-five (41%) participants were those who continued their social life with relatives, and 8 (10%) were those who were not with relatives (Table 1).

Depression, anxiety, and insomnia symptoms of the study participants, comparison by gender, marital status, having children and education levels is summarized in Table 2. Although the anxiety and depression findings of the married participants were not statistically significant compared to the single ones, the insomnia symptoms were more pronounced ($p: 0.04$). Among the participants of the survey, no difference was found in the statistical analysis between whether they have children, their educational status, whether they continue their social life alone, and the age range of the respondents.

Table 1. Demographic data

Number of patients, n (%)	85 (100)
Woman	68(80)
Age (year), n(%)	
• 18-25	32 (37,6)
• 26-35	32 (37,6)
• 36-45	20 (23,5)
• >46	1 (1,3)
Marriage	41 (47,1)
Have a child	27 (32,9)
Living place	
• Living alone	42 (49,7)
• Living with relatives	35 (41)
• Living with non- relatives	8 (10)
Intensive Care Unit Working Year	
• >1	46 (54,1)
• 1-3	15 (17,6)
• 4-5	11 (12,9)
• >6	13 (15,3)
Education Status	
• High school-Associate degree	19 (22)
• Undergraduate-Graduate	66 (78)

Twenty-one of the participants (24.7%) had symptoms of depression, 33 (38.8%) had symptoms of anxiety, and 36 (45.4%) had insomnia symptoms. In the study, it was found that depression, anxiety and insomnia symptoms were more pronounced in the female nurse group (p: 0.02, p <0.01, p: 0.05, respectively).

In statistical analysis, although there was no significant difference in all 3 scales (depression, anxiety, insomnia symptom) in educational status groups, there was a 2-fold difference in symptom appearance between the high school-associate degree group and the undergraduate-graduate group in the depression scale.

Considering the years of intensive care work, no statistically significant difference was found in all 3 scales.

The median (IQR) scores of the total participants were as follows: PHQ-9 for depression, GAD-7 for anxiety, and ISI for insomnia symptoms were 11 (8-15), 8 (6-11), and 14 (10-17), respectively.

Similar to the findings for symptoms severity, a statistically significant difference was found in the comparison of the male and female groups (PHQ median for depression (IQR) male 7 (6-11), female 12 (8-15) p: 0.04; GAD-7 median for anxiety (IQR) male 4 (4-7) female 9 (7-12) p: 0: 00; ISI median for insomnia symptoms (IQR) male 10 (7-13) female 14 (10-17) p: 0.02).

Table 2. Statistical comparison according to anxiety, depression and insomnia symptom severity categories in the total sample

		PHQ9 Depression (0-27 point) mean score (sd)	P	GAD-7 Anxiety (0-21 point) mean score (sd)	P	ISI Insomnia (0-28 point) mean score (sd)	P
Gender	Male	8.1(±3.8)	P:0,02	5.12(±3.1)	P<0,01	10.4(±5.5)	P:0,05
	Female	11.7(±4.5)		9.5(±4.2)		13.9(±5.4)	
Marriage	Married	11.2(±4.7)	P:0,05	9.1(±3.9)	P:0,61	14.1(±5.3)	P:0,04
	Single	10.8(±4.5)		8.1(±4.7)		12.3(±5.7)	
Have a child	Yes	10(±4.4)	P:0,42	9.1(±3.6)	P:0,39	13.1(±6)	P:0,85
	No	11.3(±4.4)		8.3(±4.6)		13.(±5.4)	
Education Status	High school-associate degree	12.8(±4.7)	P:0,09	7.7(±3.6)	P:0,81	14.7(±4.5)	P:0,06
	undergraduate- master's degree	10.5(±4.4)		8.9(±4.5)		12.7(±5.7)	
Social Life	One	11.1(±4.6)	P:0,83	8.1(±4)	P:0,31	13.1(±5.6)	P:0,88
	With one	10.9(±4.6)		9.1(±4.7)		13.3(±5.5)	
Intensive Care Unit Working Year	<1	10.8(±4.6)	P:0,27	8.2(±4.8)	P:0,46	12.8(±5.8)	P:0,68
	1-3	11.2(±4.9)		8.1(±2.9)		12.7(±6.1)	
	4-5	12(±4.4)		10.4(±4.3)		15.3(±2.7)	
	>6	10.6(±4.5)		9.3(±3.9)		13.2(±5.7)	
Age range	18-25	10.5(±4.3)	P:0,16	8.2(±4.8)	P:0,18	12.5(±5.5)	P:0,14
	26-35	11(±5)		8.2(±4.4)		12.6(±5.8)	
	36-45	11.5(±4.4)		9.8(±3.3)		15(±5)	
	>46	19(±0)		12(±0)		18(±0)	

sd: standard deviation

Table 3. Statistical analysis results related to the scores of the measurements

	Gender	Marriage	Have a child	Education Status	Social Life	Intensive Care Unit Working Year	Age Range
	Male/Female	Married/Single	Yes/No	High school-associate degree / undergraduate- master's degree	One/With One	1> / 1-3/ 4-5/ 6<	18-25 /26-35/ 36-45/ 46<
PHQ-9 Depression	P:0,04	P:0,62	P:0,42	P:0,05	P:0,83	P:0,9	P:0,42
GAD-7 Anxiety	P:0,00	P:0,30	P:0,39	P:0,33	P:0,31	P:0,31	P:0,09
ISI Insomnia symptoms	P:0,02	P:0,13	P:0,85	P:0,17	P:0,88	P:0,50	P:0,11

In the statistical analysis made in relation to the scores of the measurements, no significant difference was found between years of intensive care work, marital status, age, educational status, child ownership, and living alone or living together in social life (Table 3).

Discussion

This survey study evaluated 85 nurses who worked in the COVID-19 intensive care unit for at least 2 weeks, and showed that the intensive care nurses serving COVID-19 patients during the pandemic had severe psychological health symptoms.

Nurses treating COVID-19 patients are probably exposed to the highest risk of infection due to their close, frequent contact with patients and working longer hours than normal [9,10]. Overall, 24.7%, 38.8%, and 42.4% of all participants reported symptoms of depression, anxiety, and insomnia, respectively. Approximately one-third of the total participants had symptoms of psychological disturbance.

In the study conducted by Lai et al., involving 1257 healthcare workers in China during the pandemic process, more than 70 percent of the participants had psychological distress symptoms [2]. In a previous study conducted during the acute SARS epidemic, 89% of healthcare workers in high-risk situations reported psychological symptoms [11].

Among the nurses participating in the study, the depression, anxiety and insomnia symptoms of women were more severe; 80% of the participants were women, 75% were between the ages of 18-35, 51% were single. In addition, insomnia symptoms of the married participants were more pronounced. Although there was no statistical difference between the two groups in the education group on the depression scale, high school-associate degree graduates were twice as likely to have depressive findings.

The spread of the virus, the health of the family and others, changes in work, and concerns about isolation can affect the mental state of healthcare workers during this pandemic process [12].

The fact that COVID-19 can be transmitted from person to person can intensify the perception of personal danger associated with high morbidity [13] and potentially fatal outcome [14].

In a study by Lai et al., it was found that 71.5% of all nurses had less working experience [2]; 54% of the nurses participating in our study had less than a year of intensive care experience. When comparing the less experienced and more experienced nurse groups, no significant difference was found in terms of their psychological status.

Conclusions

In this study conducted on nurses working in the COVID intensive care unit, among the survey participants, high rates of depression, anxiety, and insomnia symptoms were observed. Protection of healthcare workers is an important component of public health measures against the COVID-19 outbreak. We think that psychological and social support is necessary to alleviate anxiety and provide peace for nurses working in intensive care units, and especially female nurse groups.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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